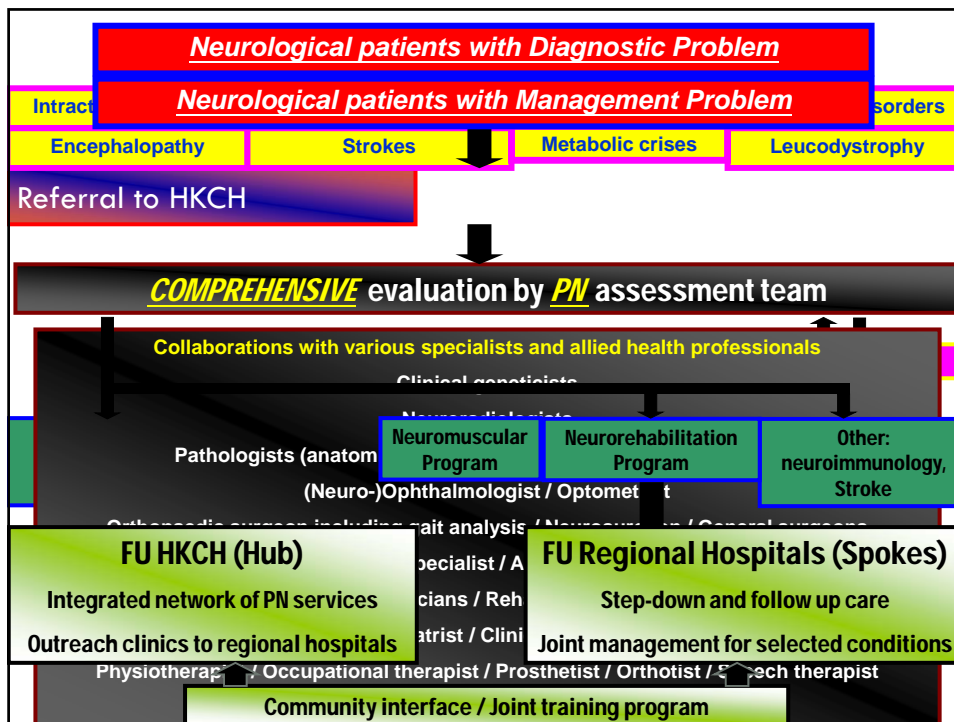


# PAEDIATRIC NEUROLOGY

Proposal on Service Model & Training Programme  
Sept 2016

## Vision

- Comprehensive service
  - ▣ Underdeveloped clinical areas
- Advancement in Paediatric Neurology
  - ▣ Fast changing field
  - ▣ Wide scope & diversity of disorders
  - ▣ Complexity
- Frontrunner vs tailgater / follower
  - ▣ Not just another department with PN services



## Shared care programs

- Hub & Spokes Model:
  - HKCH as the hub
  - Integrated network of paediatric neurology services
  - Outreach clinics to regional hospital if necessary
- Regional hospitals' role:
  - step-down and follow-up care
  - Joint management of selected neurological conditions
  - Step-down neuro-rehabilitation services
- Community interface for the HKCH Programmes
- Joint training programme

## Services to be transferred to HKCH

- Complicated neurological cases requiring multidisciplinary diagnosis and treatment, e.g. epilepsy surgery, VNS, rhizotomy, deep brain stimulation, cochlear implant
- Diagnosis and management of all neurometabolic patients, complicated neurogenetic conditions / movement disorders
- Tertiary management of cerebral palsied children
- Neuromuscular program plus acute rehabilitation

## Preparatory Phase

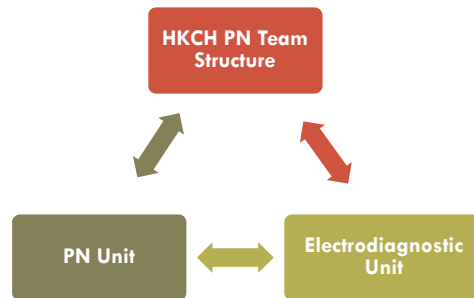
### Current situation:

- 3 clusters
  - QMH, PYNEH, UCH, TKO
  - PWH, QEH, ANHN, KWH
  - TMH, PMH, CMC
- Manpower
  - Fellows      20 + 2
- Meetings to discuss PN team structure in Phase One
  - With stakeholders
  - Manpower estimation & redistribution
  - Services and planning
  - Patients (Partly follow the manpower movement?)
  - ⇒ **Commissioning Team**

# Phase One

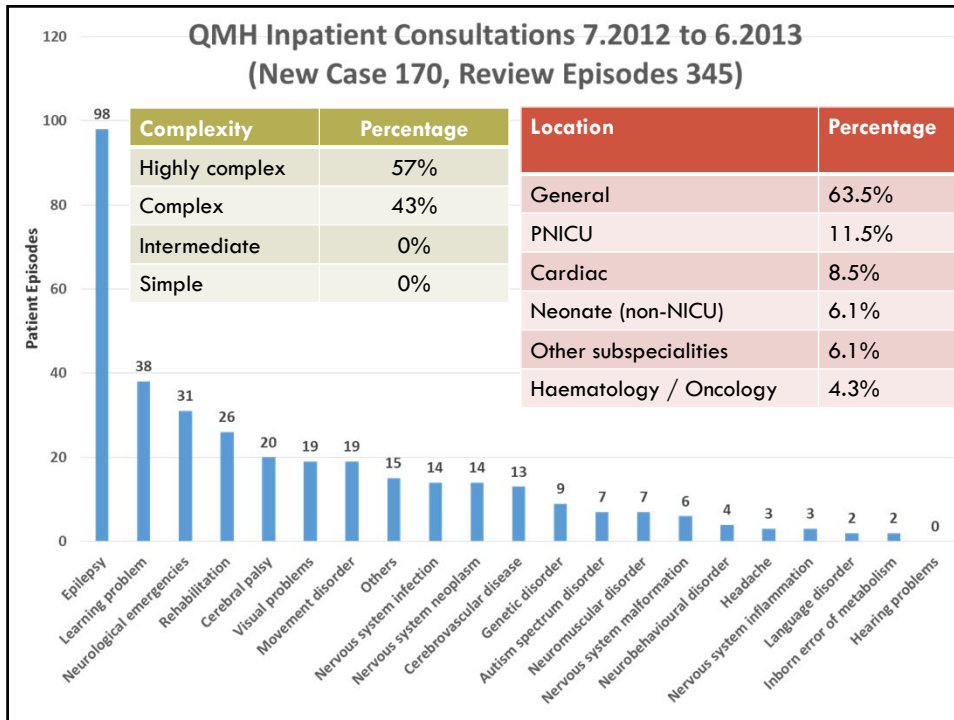
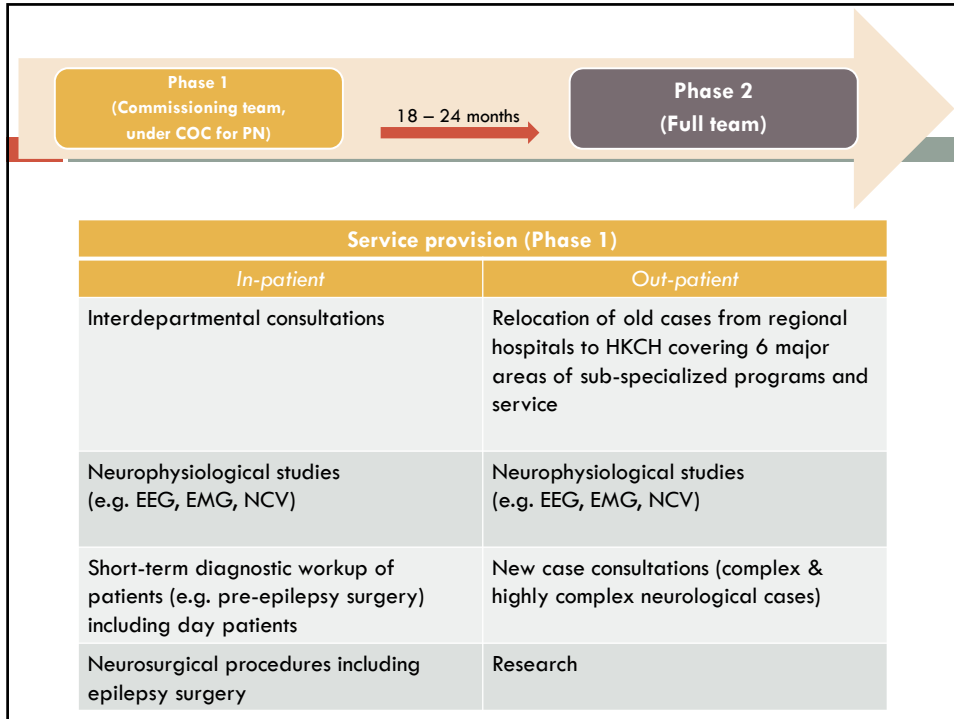
## Team structure

- Electrophysiology
  - 1 in-charge medical electrophysiologist (consultant grade) + 4 technicians
- Paediatric Neurology
  - Up to 5 senior staff (2 consultants + 3 ACs)
  - 3 residents
- **“Commissioning team” in the interim under COC for PN**
- Electrophysiology studies
  - Preparatory workup for epilepsy surgeries
  - Intra-operative monitoring
  - Investigations and diagnosis
- Inter-department consultations
- Subspecialty clinics
- Day patients + inpatients
- Subspecialty programmes
- Research??



### 6 Major Areas of Sub-specialized Programs and Service

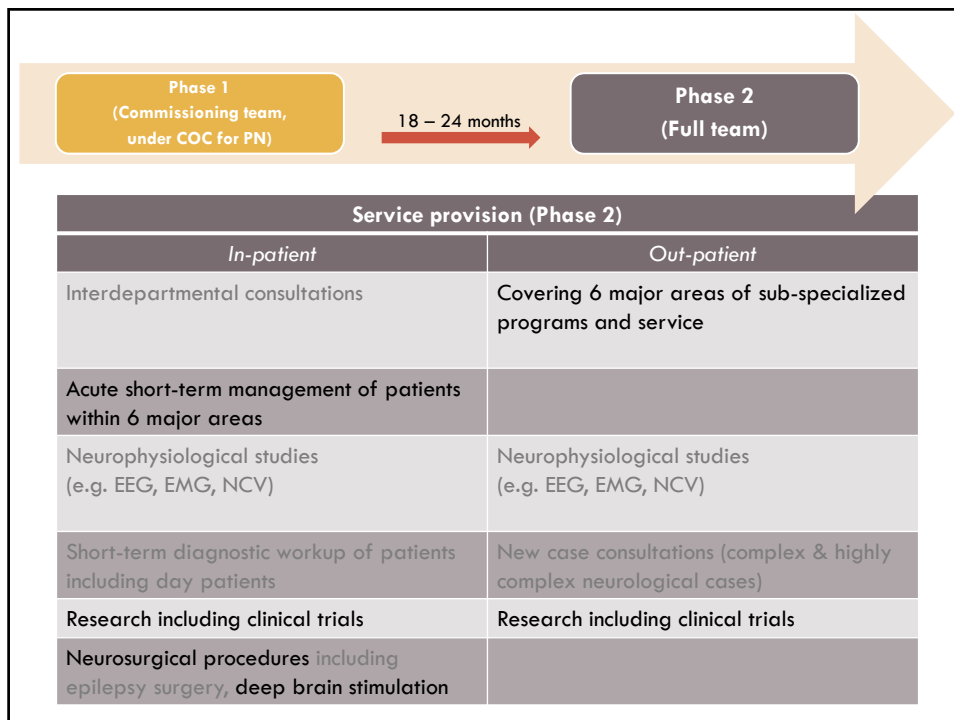
PN Unit	EDU Unit
Intractable epilepsy	Neurophysiology
Neurometabolic, neurodegenerative, movement disorder	
Neuromuscular	
Neurorehabilitation	
Others: Neuroimmunology, strokes, complex & highly complex General Neurology cases etc.	

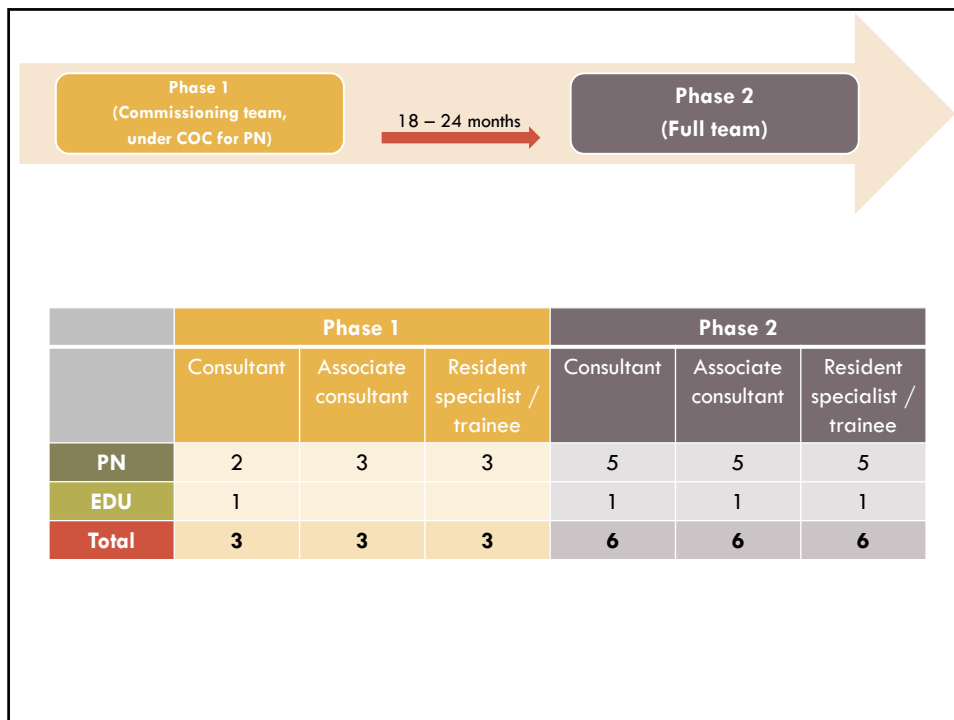


## Phase Two

Previous submission from provisional PN Board with reference to overseas standard

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>□ Intractable epilepsy programme</li> <li>□ Neurometabolic / neurodegenerative / movement disorders programme</li> <li>□ Neuromuscular programme</li> <li>□ Neurorehabilitation programme</li> <li>□ Neurophysiology service</li> <li>□ Other service: neuroimmunology, stroke, complex &amp; highly complex General Neurology cases</li> </ul> | <ul style="list-style-type: none"> <li>□ 5 PN Consultants + 5 ACs + 5 Residents</li> <li>□ 1 Neurophysiologist (consultant) + 1 AC + 1 Resident</li> <li>□ 1 Fulltime Orthopaedic consultant</li> <li>□ 1 Fulltime Neurosurgical consultant</li> <li>□ Fully staffed and dedicated PT, OT, P&amp;O and ST departments with rehabilitation engineers</li> <li>□ Neuropathologist</li> <li>□ Chemical pathology and Genetic laboratory</li> <li>□ Gait lab with engineer(s)</li> <li>□ Respiratory therapists</li> </ul> |
|--|--|





Number of full-time paediatric specialists	GOSH United Kingdom	CHB United States of America	HSC Toronto Canada	RCH Melbourne Australia
Neurology (PN)	19	45	18.5	11
Neurorehabilitation (NH)	(including 2 from Neurology)	(included in Neurology)	2	3
Neurophysiology (NP)	4 (+2 from Neurology)	(included in Neurology)	(included in Neurology)	(included in Neurology)
<b>Total (PN+NH+NP)</b>	<b>23</b>	<b>45</b>	<b>20.5</b>	<b>14</b>
Total population	62,435,709	312,474,000	34,623,000	22,739,758
Number of children's hospitals serving total population	22	158	16	9
Average population served by hospital	2,837,987	1,977,684	2,163,938	2,526,640
<b>Number of specialists (PN+NH+NP) per million population</b>	<b>8</b>	<b>22</b>	<b>9</b>	<b>6</b>

## Future Regional Hospitals PN Services

HA Hospital Clusters	Part Time
New Territories West Cluster (TMH)	2
New Territories East Cluster (AHNH, PWH)	3
Kowloon West Cluster (CMC, PMH)	3
Kowloon East Cluster (UCH, TKO)	2
Kowloon Central Cluster (QEH, KWH)	2
Hong Kong West Cluster (QMH, DKCH)	2
Hong Kong East Cluster (PYNEH)	1
<b>Total</b>	<b>15 (7.5 FTE)</b>

⇒ 3 mega-clusters for more flexibility. 5 PN in each mega-cluster

### □ Assume 7 millions (Population of HK)

#### □ 6 x 7 = 42 full time PN taking the lowest estimation

- HKCH: Assuming 5 Cons + 5 ACs + 5 Residents = 10  
1 Neurophysiologist consultant + 1 AC + 1 Resident = 2  
⇒ 6 Cons + 6 ACs = 12 PNs
- Regional Hospitals; 15 PNs to run the service (only performing 51% PN duties) = 7.5 equivalence of FT PN
- Deficit: 42 - 12 - 8 = 22
- Retirement, overseas training, resignation, promotion – not formulated

#### □ Current PN trainees = 14

- Training completed at different stages  
First batch completed in end 2017



## Wish list for CEP

- Experienced and enthusiastic orthopaedic surgeons and neurosurgeons
- Gait lab with biomedical engineers
- Rehabilitation engineers
- Full paraclinical staff (especially speech therapists, P&O support)
- Advanced neurometabolic and genetic laboratory service with potential to expand
- Respiratory therapists
- Neurologist and neurophysiologist experienced in epilepsy localization, intracranial monitoring, brain mapping and diagnosis of neuromuscular diseases
- Neuropsychologist experienced in working with children
- Neuro-ophthalmologist
- High powered MR machine (3T) with experienced and dedicated paediatric neuro-radiologists
- Magnetoencephalography
- Support for orphan diseases (pharmacy, dietetics, laboratory support)
- And more ....

## Training Model

### Current training model

- 3 years with 1 year overlap with higher training
  - Modules:
    - Peadiatric Neurology (27 m)
    - Neurodevelopmental (3 m)
    - Neurorehabilitation (3 m)
    - Adult Neurology (3 m)
  - Exit assessment

### Future training model

- 1 year; overlap with higher training
- 2 years; cluster hospitals / HKCH

## Training Model

### Resident Post: 6 - 8

- Phase one
  - ▣ Rotations (HKCH needs to fulfill status of training center)
- Phase two
  - ▣ 3-4 training post in PN
  - ▣ 3-4 rotations (for paediatric trainees )
  - ▣ Proportions can shift depending on manpower need

### Research

- To innovate and to lead
- Research post with reduced clinical duties
- Protected time

## Manpower Redistribution

- Current PN fellows in HA = 22  
PN Trainees = 14
- With 6 fellows -> HKCH in Phase One  
15 in regional hospitals; service demand ↑ initially
  - ▣ Replacement of manpower (both in PN & gen Paediatrics; ~50:50 duties in PN / Paed)
    - Paed > PN if there is patient shift to HKCH
  - ▣ University hospitals?
    - Certain specialist-led services
    - Dual employment contract; consider?
  - ▣ Cases transfer: arrangement?
    - Cases follow manpower shift (unlikely to be complete)

## Hospital Dynamics

- HKCH ↔ University hospitals ↔ Cluster centers
  - University participation in HKCH; post with dual employment contract; duty proportioning issue?
  - Availability of expertise
  - Considering > 1 center for some subspecialty clinical areas
    - Cluster based in provision

~ END ~